PTO 1542 (4-85)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ONLINE SEARCH REQUEST FORM

USER PAUL B. TRAN SERIAL NUMBER US/PA 08/430,570 157195

ART UNIT 1807 PHONE 308-4040 DATE 3/6/95

Please give a detailed statement of requirements. Describe as specifically as possible the subject matter to be searched. Define any terms that may have special meaning. Give examples or relevant citations, authors, or keywords, if known.

You may include a copy of the broadest and or relevant claim(s).

Please search literatures and APS for:

Authors: HENCO, Karsten
EIGEN, Manfred
RIESNER, Detlev

Subjects: A method to detect denatured nucleic acids amplified by polymerase chain reaction. The method involves the use of a probe crosslinked to a psoralen (or a psoralen derivatives), which is able to absorb or to emit electromagnetic waves. (See claim ① for details.)

Thank

Paul

STAFF USE ONLY

3-52

COMPLETED 3/8

SEARCHER

ONLINE TIME (in minutes)

TOTAL TIME

NO. OF DATABASES

SYSTEMS
CAS ONLINE
DARC/QUESTEL
DIALOG
SDC
OTHER

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=> fil reg
FILE 'REGISTRY' ENTERED AT 10:36:25 ON 08 MAR 95
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STRUCTURE FILE UPDATES:   3 MAR 95   HIGHEST RN 161274-47-1
DICTIONARY FILE UPDATES:  7 MAR 95   HIGHEST RN 161274-47-1

TSCA INFORMATION NOW CURRENT THROUGH MAY 1994

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

=> s pcr/cn
L1            0 PCR/CN

=> del l1 y
'L1' DELETED

=> e psoralen/cn 5
E1            1     PSORALEA BITUMINOSA, EXT./CN
E2            1     PSORALEA TETRAGONOLOBA, MEAL/CN
E3            1 --> PSORALEN/CN
E4            1     PSORALEN QUINONE/CN
E5            1     PSORALEN RADICAL ANION/CN

=> s psoralen?/cn
L1           10 PSORALEN?/CN

=> fil ca
FILE 'CA' ENTERED AT 10:37:01 ON 08 MAR 95
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FILE COVERS 1967 - 4 Mar 1995 (950304/ED)  VOL 122 ISS 10

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  SmartSELECT searches with large numbers of terms.

CAPLUS IS NOW ONLINE!

=> s l1 or psoralen?
          1325 L1
          2241 PSORALEN?
L2        2507 L1 OR PSORALEN?

=> s l2 and (pcr or polymerase chain react?)
         16303 PCR
         45948 POLYMERASE
        256234 CHAIN
       2395938 REACT?
         16544 POLYMERASE CHAIN REACT?
                 (POLYMERASE(W)CHAIN(W)REACT?)
L3           17 L2 AND (PCR OR POLYMERASE CHAIN REACT?)
```

```
=> s l3 and (nucleic acid or electromagnetic)
         58768 NUCLEIC
       1785578 ACID
         32028 NUCLEIC ACID
                 (NUCLEIC(W)ACID)
         38071 ELECTROMAGNETIC
L4           5 L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)

=> d 1-5 an .mh
```

L4 ANSWER 1 OF 5 CA COPYRIGHT 1995 ACS
AN 121:172243 CA
TI Control of **nucleic acid** contamination enzyme preparations for amplification of DNA
SO PCT Int. Appl., 38 pp.
CODEN: PIXXD2
IN Tessman, John W.; Cimino, George D.; Isaacs, Stephen T.; Hearst, John E.
PI WO 9412515 A1 940609
AI WO 93-US7452 930809
PY 1994
AB A method useful for solving the problem of contamination of proteins used in **nucleic acid** amplification with **nucleic acid** that renders the contaminating **nucleic acid** in enzyme prepns. substantially unamplifiable is described. The method uses an activatable reagent, e.g. a photoactivatable one, to modify contaminating nucleic acids and prevent them from being amplified. The method is demonstrated using **psoralen** derivs. to crosslink DNA contaminants found in com. prepns. of Taq polymerase. Optimization of inactivation by choice of reagent and other reaction conditions is demonstrated.

L4 ANSWER 2 OF 5 CA COPYRIGHT 1995 ACS
AN 120:100747 CA
TI Evaluation of hepatitis B virus photoinactivation in serum and cellular blood components by the **polymerase chain reaction**
SO Report (1992), AFIT/CI/CIA-92-073; Order No. AD-A254935, 66 pp.
Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1993, 93(1), Abstr. No. 301,584
AU Saraceni, F.
PY 1992
AB The purpose of this study was to investigate the usefulness of the **polymerase chain reaction** as a tool in the photoinactivation of transfusion transmitted viruses. There are currently 2 major methods of inactivating viruses in blood components. One is an oxygen dependent, membrane directed method and the other is a **nucleic acid** directed method. Current methods of evaluating photoinactivation involved either viral cultures or chimpanzee infectivity studies. These evaluation methods require from one wk to one year to obtain results. The **polymerase chain reaction** amplifies a region of the viral DNA by repeated denaturing-annealing-extending of that region. If viral DNA is inactivated by crsslinking in the **nucleic acid**-directed inactivation procedure, the denaturation step can not proceed and previously pos. results, using

the **polymerase chain reaction**, will now be neg. This study used the **polymerase chain reaction** to evaluate the inactivation of hepatitis B virus with **psoralen** compds. in a **nucleic acid** -directed procedure.

L4 ANSWER 3 OF 5 CA COPYRIGHT 1995 ACS
AN 119:155502 CA
TI Methods for measuring the inactivation of pathogens in blood and blood products
SO PCT Int. Appl., 50 pp.
CODEN: PIXXD2
IN Cimino, George D.; Lin, Lily
PI WO 9315215 A1 930805
AI WO 93-US786 930126
PY 1993
AB Non-immunochem. methods for measuring levels of pathogens in blood products after treating the blood to inactivate the pathogens are described. These methods are for use with photochem. decontamination processes, most notably with **psoralens** and isopsoralens at low oxygen tensions that modify pathogen nucleic acids. The method involves measuring the levels of template-dependent **nucleic acid** synthesis in a treated sample. The method uses three different pairs of primers: one set uses sites that are too close together for thee to be a photochem. reaction between them, the second set uses sites far enough apart for a reaction to occasionally occur between them, the third set uses sites far enough apart to always have an addn. site between them under std. reaction conditions. By measuring the levels of the amplification products the level of inactivation of pathogens can be detd. The method was shown to be able to show a lowering of the titer of HIV in infected H9 cells of 5.times.10-7-fold.

L4 ANSWER 4 OF 5 CA COPYRIGHT 1995 ACS
AN 119:134564 CA
TI Photochemical inactivation of cell-associated human immunodeficiency virus in platelet concentrates
SO Blood (1993), 82(1), 292-7
CODEN: BLOOAW; ISSN: 0006-4971
AU Lin, Lily; Londe, Helen; Hanson, Carl V.; Wiesehahn, Gary; Isaacs, Stephen; Cimino, George; Corash, Laurence
PY 1993
AB Photochem. decontamination (PCD) of platelet concs., with adequate preservation of platelet function, has been shown using 8-methoxypsoralen (8-MOP) and long-wavelength UV light (UVA). To further evaluate this technique, models for the inactivation of pathogenic human cell-assocd. viruses and integrated proviral sequences are required. The ability has been assessed of the PCD technique to inactivate cell-assocd. human immunodeficiency virus 1 (HIV-1) in platelet concs. PCD inhibition of HIV-1 infectivity was correlated with 8-MOP-DNA adduct formation in contaminating nucleated cells, and the inhibition measured of **polymerase chain reaction** (**PCR**)-mediated amplification of cellular DNA sequences as a surrogate for inactivation of integrated proviral **nucleic acid** sequences. After PCD treatment (8-MOP 300 .mu.g/mL, UVA 17 mW/cm2)

for 60 min, 0.5 .times. 106 plaque-forming units (PFU)/mL of cell-assocd. HIV-1 were inactivated and no virus was detectable by infectivity assay. After 60 min of PCD, 15 MOP-DNA adducts per 1000 bp were formed, while in the absence of UVA, no adducts were formed. **PCR**-mediated amplification of a 242-bp cellular DNA sequence (HLA-DQ-.alpha.) was inhibited when >8 **psoralen**-DNA adducts per 1000 bp were present. These studies indicate that high titers of cell-assocd. HIV-1 in platelet concs. were inactivated by PCD, and the nos. of 8-MOP-DNA adducts in nucleated cells were sufficient to inhibit amplification of DNA segments that encode for as few as 80 amino acids. Based on the frequency of 8-MOP-DNA adducts, for the 10-kb HIV-1 genome, the probability of an integrated genome without at least one 8-MOP adduct after 60 min of PCD was 10-33.

L4 ANSWER 5 OF 5 CA COPYRIGHT 1995 ACS
AN 113:207855 CA
TI Identification of allele-specific **nucleic acid** sequences by hybridization with crosslinkable oligonucleotide probes
SO PCT Int. Appl., 53 pp.
CODEN: PIXXD2
IN Cimino, George D.; Hearst, John E.; Isaacs, Steven T.; Levenson, Corey; Saiki, Randall K.
PI WO 9001563 A1 900222
AI WO 89-US3189 890724
PY 1990
AB A method for discriminating between .gtoreq.2 **nucleic acid** base sequences in target **nucleic acid** (s) comprises denaturing target and probe mols., hybridizing the single-stranded probe(s) and target mols. at .gtoreq.1 distinct temp. in the presence of a crosslinking reagent (e.g. **psoralen**) capable of forming covalent bonds between the target and probe, crosslinking the hybridized probe and target mols., and identifying a label (on the target, probe, or crosslinking reagent) as a measure of the amt. of covalently crosslinked single-stranded probe and **nucleic acid** target. The target **nucleic acid** may be amplified by the **polymerase chain reaction** (**PCR**). Problems with renaturation of target **nucleic acid** are minimized. DNA template from human immunodeficiency virus 1 (HIV-1)-pos. blood was amplified by **PCR** using 2 28-mer primers for 30 cycles. Following amplification, 32P-labeled 41-mer probe monoadducted with 8-methoxypsoralen was added, the mixt. was heat-denatured at 90-95.degree. for 5 min and then irradiated at 320-400 nm and 55.degree. for 5 min. The denaturation/irradn. cycle was repeated twice. For anal., samples were heat-denatured and run on a denaturing (8M urea) 12 polyacrylamide gel. The autoradiogram showed a 115-mer:41-mer crosslinked product dependent on both irradn. and amplification.

```
=> s henco K/a/u
'U' IS NOT A VALID FIELD CODE
L5            0 HENCO K/A/U

=> del 15 y
'L5' DELETED
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```
=> e henco k?/au
E1            2     HENCO A/AU
E2            8     HENCO K/AU
E3            0 --> HENCO K?/AU
E4           37     HENCO KARSTEN/AU
E5            1     HENCOQUE J/AU
E6           48     HENCSEI P/AU
E7            1     HENCSEI PAI/AU
E8           88     HENCSEI PAL/AU
E9            1     HENCSEL PAL/AU
E10           1     HENCZ LASZLO/AU
E11           1     HENCZ TIBOR MRS/AU
E12           3     HENCZI MARIA/AU

=> s e2 or e4
              8 "HENCO K"/AU
             37 "HENCO KARSTEN"/AU
L5           45 "HENCO K"/AU OR "HENCO KARSTEN"/AU

=> e eigen m?/au
E1            1     EIGEN I/AU
E2           15     EIGEN M/AU
E3            0 --> EIGEN M?/AU
E4           74     EIGEN MANFRED/AU
E5            1     EIGEN PETER/AU
E6            1     EIGENAUER HERBERT/AU
E7            1     EIGENBERG D A/AU
E8            5     EIGENBERG DAVID A/AU
E9            1     EIGENBERG DAVID ALAN/AU
E10           1     EIGENBERG K E/AU
E11           5     EIGENBERG KENNETH E/AU
E12           3     EIGENBERG KENNETH EUGENE/AU

=> s e2 or e4
             15 "EIGEN M"/AU
             74 "EIGEN MANFRED"/AU
L6           89 "EIGEN M"/AU OR "EIGEN MANFRED"/AU

=> e riesner d/au
E1            1     RIESMEIER WILHELM/AU
E2            1     RIESMEYER WILLIAM D/AU
E3           40 --> RIESNER D/AU
E4            1     RIESNER DETLEF/AU
E5           87     RIESNER DETLEV/AU
E6            1     RIESNER H/AU
E7            1     RIESNER HORST/AU
E8            2     RIESNER HUBERT/AU
E9            7     RIESNER K/AU
E10           1     RIESNER S/AU
E11           1     RIESNER WILLI/AU
E12           7     RIESOP JOERG/AU

=> s e3-e5
             40 "RIESNER D"/AU
              1 "RIESNER DETLEF"/AU
             87 "RIESNER DETLEV"/AU
```

```
L7          128 ("RIESNER D"/AU OR "RIESNER DETLEF"/AU OR "RIESNER DETLEV"
                /AU)

=> s l7 and l6 and l5
L8            1 L7 AND L6 AND L5

=> d

L8   ANSWER 1 OF 1  CA  COPYRIGHT 1995 ACS
AN   119:153368  CA
TI   Determination of in vitro amplified nucleic acid sequences
IN   Henco, Karsten; Eigen, Manfred; Riesner,
     Detlev
PA   Diagen Institut fuer Molekularbiologische Diagnostik GmbH, Germany
SO   Ger. Offen., 26 pp.
     CODEN: GWXXBX
PI   DE 4234086 A1  930812
AI   DE 92-4234086  921009
PRAI DE 92-4203178  920205
DT   Patent
LA   German

=> d ab

L8   ANSWER 1 OF 1  CA  COPYRIGHT 1995 ACS
AB   Amplification of a nucleic acid sequence is detd. spectrometrically
     by (a) exposure to a probe bearing an interacting luminescent or
     fluorescent dye, the signal from which is altered (e.g. in
     wavelength, polarization, lifetime of excited state, energy
     transfer, or concn. effect) by denaturation of the nucleic acid, (b)
     application of a gradient (e.g. in temp.) which denatures the
     nucleic acid, and (c) measurement of the change in signal as a
     function of time in comparison with stds.  This procedure requires
     no gel electrophoretic sepn., may be carried out in film-sealed
     microtiter plates, and is readily automated.

=> fil .biotech
FILE 'BIOSIS' ENTERED AT 10:44:13 ON 08 MAR 95
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FILE 'MEDLINE' ENTERED AT 10:44:13 ON 08 MAR 95

FILE 'EMBASE' ENTERED AT 10:44:13 ON 08 MAR 95
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=> s l3 and (nucleic acid or electromagnetic)
FILE 'BIOSIS'
          1803 L1
          3340 PSORALEN?
         17795 PCR
         60390 POLYMERASE
        136178 CHAIN
        454331 REACT?
         31208 POLYMERASE CHAIN REACT?
                 (POLYMERASE(W)CHAIN(W)REACT?)
         23542 NUCLEIC
        705088 ACID
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```
         15131 NUCLEIC ACID
                 (NUCLEIC(W)ACID)
          4404 ELECTROMAGNETIC
L9           1 L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)

FILE 'MEDLINE'
           129 L1
          1924 PSORALEN?
         15563 PCR
         55263 POLYMERASE
        117847 CHAIN
        439588 REACT?
         34267 POLYMERASE CHAIN REACT?
                 (POLYMERASE(W)CHAIN(W)REACT?)
        104387 NUCLEIC
        672135 ACID
         96984 NUCLEIC ACID
                 (NUCLEIC(W)ACID)
          6631 ELECTROMAGNETIC
L10          2 L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)

FILE 'EMBASE'
           495 L1
          2124 PSORALEN?
         14653 PCR
         45704 "POLYMERASE"
        100071 "CHAIN"
        583124 REACT?
         26251 POLYMERASE CHAIN REACT?
                 ("POLYMERASE"(W)"CHAIN"(W)REACT?)
         15729 "NUCLEIC"
        733006 "ACID"
         12810 NUCLEIC ACID
                 ("NUCLEIC"(W)"ACID")
          5007 ELECTROMAGNETIC
L11          3 L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)

TOTAL FOR ALL FILES
L12          6 L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)

=> dup rem l12
PROCESSING COMPLETED FOR L12
L13           3 DUP REM L12 (3 DUPLICATES REMOVED)

=> d 1-3 an ti so au ab

L13  ANSWER 1 OF 3  MEDLINE                              DUPLICATE 1
AN   94266916     MEDLINE
TI   Reversible inhibition of gene expression by a psoralen
     functionalized triple helix forming oligonucleotide in intact cells.
SO   J Biol Chem, (1994 Jun 17) 269 (24) 16933-7.
     Journal code: HIV. ISSN: 0021-9258.
AU   Degols G; Clarenc J P; Lebleu B; Leonetti J P
AB   Triple helix formation of nucleic acids is the most rational
     approach to designing site-specific transcription inhibitors. To
     increase their efficiency, reactive moieties such as
   psoralen or ethenocytosine have been introduced on the third
```

strand. In transfected cells, these compounds induce a site-specific covalent binding of the third strand to the targeted sequence and efficiently block RNA polymerases. However, the stability of this transcription inhibition has never been checked. We have designed a plasmid containing a triple helix binding site in the coding region of the beta-galactosidase reporter gene and a **polymerase chain reaction** assay to follow quantitatively the cross-link of a **psoralen**-derivatized third strand in transfected cells. This assay has revealed that the cross-link was removed within a few hours, leading only to a transitory inhibition of gene expression. Control experiments in DNA repair-deficient cells suggest the implication of repair enzymes in this process.

L13 ANSWER 2 OF 3 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 94131455 EMBASE
TI Mutation specificity of 8-methoxypsoralen plus two doses of UVA irradiation in the hprt gene in diploid human fibroblasts.
SO CARCINOGENESIS, (1994) 15/2 (201-207).
ISSN: 0143-3334 CODEN: CRNGDP
AU Yang S.-C.; Lin J.-G.; Chiou C.-C.; Chen L.-Y.; Yang J.-L.
AB To investigate which specific kinds of base changes are induced by **psoralen** adducts in the genomic DNA of diploid human fibroblasts, cells were exposed to 8-methoxypsoralen (8-MOP) at 2-12 .mu.M followed by one dose of UVA (365 nm) irradiation (PUVA-I treatment) or two doses of UVA (PUVA-II treatment). While PUVA-I treatment produced little effect on the induction of cytotoxicity, PUVA-II treatment significantly reduced the fibroblasts' colony-forming ability and resulted in about 10-fold increases in mutation frequency at the D0 dose. Mutations in the hypoxanthine (guanine) phosphoribosyltransferase (hprt) gene of 36 independent PUVA-II mutants were characterized by direct sequencing of cDNA amplified by the **polymerase chain reaction (PCR)**. Seventeen mutants contained single base substitutions and the other 19 mutants either lacked one or more exons, or had deleted or gained nucleotides in the exon boundaries in their cDNA. The intron-exon boundaries of 10 of these 19 putative splicing mutants were further characterized by direct sequencing of the **PCR**-amplified hprt gene. The results showed that nine contained single base substitutions at the consensus splicing donor and acceptor sites. One splicing mutant possessed two base substitutions located at exon 8, whereas its splicing sites were intact. Most of the base substitutions occurred at T.cntdot.A base pairs (24/29). The majority of T.cntdot.A changes occurred at thymine of 5'TA and 5'ATA on the non-transcribed strand. Four of the five G.cntdot.C base substitutions were located at guanines of 5'TG sites adjacent 3' to AT or TA sequences. In addition, the occurrence of a specific type of mutation was highly correlated to the 5' flanking bases of TA sites. The mutagenesis of 13 of the 16 mutational events at 5'TA sites on the non-transcribed strand can be explained by the preferential incisions of the photoadducts on the transcribed strand followed by misalignment-realignment during translesion repair synthesis of the bulky lesions on the non-transcribed strand.

L13 ANSWER 3 OF 3 BIOSIS COPYRIGHT 1995 BIOSIS DUPLICATE 2
AN 93:389819 BIOSIS
TI PHOTOCHEMICAL INACTIVATION OF CELL-ASSOCIATED HUMAN IMMUNODEFICIENCY

VIRUS IN PLATELET CONCENTRATES.
SO BLOOD 82 (1). 1993. 292-297. CODEN: BLOOAW ISSN: 0006-4971
AU LIN L; LONDE H; HANSON C V; WIESEHAHN G; ISAACS S; CIMINO G; CORASH L
AB Photochemical decontamination (PCD) of platelet concentrates, with adequate preservation of platelet function, has been shown using 8-methoxypsoralen (8-MOP) and long wavelength UV light (UVA). To further evaluate this technique, models for the inactivation of pathogenic human cell-associated viruses and integrated proviral sequences are required. We have assessed the ability of the PCD technique to inactivate cell-associated human immunodeficiency virus 1 (HIV-1) in platelet concentrates. We correlated PCD inhibition of HIV-1 infectivity with 8-MOP-DNA adduct formation in contaminating nucleated cells, and measured the inhibition of **polymerase chain reaction** (**PCR**)-mediated amplification of cellular DNA sequences as a surrogate for inactivation of integrated proviral **nucleic acid** sequences. After PCD treatment (B-MOP 300 .mu.g/mL, UVA 17 mW/cm2) for 60 minutes, 0.5 .times. 106 plaque-forming units (PFU)/mL of cell-associated HIV-1 were inactivated and no virus was detectable by infectivity assay. After 60 minutes of PCD, 15 8-MOP-DNA adducts per 1,000 bp were formed, while in the absence of UVA, no adducts were formed. **PCR**-mediated amplification of a 242-bp cellular DNA sequence (HLA-DQ-.alpha.) was inhibited when greater than eight **psoralen** -DNA adducts per 1,000 bp were present. These studies indicate that high titers of cell-associated HIV-1 in platelet concentrates were inactivated by PCD, and the numbers of 8-MOP-DNA adducts in nucleated cells were sufficient to inhibit amplification of DNA segments that encode for as few as 80 amino acids. Based on the frequency of 8-MOP-DNA adducts, for the 10-kb HIV-1 genome, the probability of an integrated genome without at least one 8-MOP adduct after 60 minutes of PCD was 10-33.**

=> dis his

(FILE 'REGISTRY' ENTERED AT 10:34:43 ON 08 MAR 95)
DEL HIS Y

FILE 'REGISTRY' ENTERED AT 10:36:25 ON 08 MAR 95
E PSORALEN/CN 5
L1 10 S PSORALEN?/CN

FILE 'CA' ENTERED AT 10:37:01 ON 08 MAR 95
L2 2507 S L1 OR PSORALEN?
L3 17 S L2 AND (PCR OR POLYMERASE CHAIN REACT?)
L4 5 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
E HENCO K?/AU
L5 45 S E2 OR E4
E EIGEN M?/AU
L6 89 S E2 OR E4
E RIESNER D/AU
L7 128 S E3-E5
L8 1 S L7 AND L6 AND L5

FILE 'BIOSIS, MEDLINE, EMBASE' ENTERED AT 10:44:13 ON 08 MAR 95
FILE 'BIOSIS'
L9 1 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
FILE 'MEDLINE'

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L10           2 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
     FILE 'EMBASE'
L11           3 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
     TOTAL FOR ALL FILES
L12           6 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
L13           3 DUP REM L12 (3 DUPLICATES REMOVED)

=> s l8
FILE 'BIOSIS'
           102 "RIESNER D"/AU
             0 "RIESNER DETLEF"/AU
             0 "RIESNER DETLEV"/AU
            68 "EIGEN M"/AU
             0 "EIGEN MANFRED"/AU
            19 "HENCO K"/AU
             0 "HENCO KARSTEN"/AU
L14          0 L7 AND L6 AND L5

FILE 'MEDLINE'
            73 "RIESNER D"/AU
             0 "RIESNER DETLEF"/AU
             0 "RIESNER DETLEV"/AU
            66 "EIGEN M"/AU
             0 "EIGEN MANFRED"/AU
            22 "HENCO K"/AU
             0 "HENCO KARSTEN"/AU
L15          0 L7 AND L6 AND L5

FILE 'EMBASE'
            44 "RIESNER D"/AU
             0 "RIESNER DETLEF"/AU
             0 "RIESNER DETLEV"/AU
            43 "EIGEN M"/AU
             0 "EIGEN MANFRED"/AU
            14 "HENCO K"/AU
             0 "HENCO KARSTEN"/AU
L16          0 L7 AND L6 AND L5

TOTAL FOR ALL FILES
L17          0 L8

=> fil wpids
FILE 'WPIDS' ENTERED AT 10:47:40 ON 08 MAR 95
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DERWENT WEEK FOR CHEMICAL CODING:   9501
DERWENT WEEK FOR POLYMER INDEXING:  9505
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE
>>> DERWENT POLYMER INDEXING THESAURUS AVAILABLE IN FIELD /PLE <<<
     >>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY <<<
>>> 7 MILLIONTH RECORD AWAITED FOR DW9512-14. PRIZE DRAW - SEE NEWS <<<
      >>> TIMELINESS OF UPDATING IMPROVED - SEE NEWS <<<
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```
=> s l3 and (nucleic acid or electromagnetic)
'CN' IS NOT A VALID FIELD CODE
             0 PSORALEN?/CN
           138 PSORALEN?
           726 PCR
          1052 POLYMERASE
        113412CHAIN
        520855 REACT?
           375 POLYMERASE CHAIN REACT?
                 (POLYMERASE(W)CHAIN(W)REACT?)
          5822 NUCLEIC
        544429 ACID
          4810 NUCLEIC ACID
                 (NUCLEIC(W)ACID)
         66444 ELECTROMAGNETIC
L18          1 L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)

=> d

L18  ANSWER 1 OF 1  COPYRIGHT 1995 DERWENT INFORMATION LTD
AN   91-164212 [22]   WPIDS
DNC  C91-071124
TI   New isopsoralen cpds. - used for labelling nucleic acids or
     inhibiting template-dependent enzymatic synthesis of nucleic acids.
DC   B02 C02 D16
IN   CIMINO, G D; HEARST, J E; ISAACS, S T; METCHETTE, K C; TESSMAN, J W;
     MINO, G D; TESSMAN, F W
PA   (CIMI-I) CIMINO G D; (HEAR-I) HEARST J E; (ISAA-I) ISAACS S T;
     (METC-I) METCHETTE K C; (TESS-I) TESSMAN J W
CYC  19
PI   WO 9106665  A  910516 (9122)*
        RW: AT BE CH DE DK ES FR GB GR IT LU NL SE
         W: AU CA JP
     AU 9169591  A  910531 (9135)
     EP 497921   A1 920812 (9233)  EN  308 pp    C12P019-34
         R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
     US 5139940  A  920818 (9236)      122 pp    C12Q001-68
     JP 05501713 W  930402 (9318)       83 pp    C07D493-04
     US 5221608  A  930622 (9326)      115 pp    C12Q001-68
     AU 649992   B  940609 (9428)                C12Q001-68
ADT  EP 497921 A1 WO 90-US6228 901026, EP 91-901024 901026; US 5139940 A
     US 89-427303 891026; JP 05501713 W WO 90-US6228 901026, JP 91-501430
     901026; US 5221608 A US 89-428494 891026; AU 649992 B AU 91-69591
     901026
FDT  EP 497921 A1 Based on WO 9106665; JP 05501713 W Based on WO 9106665;
     AU 649992 B Previous Publ. AU 9169591, Based on WO 9106665
PRAI US 89-427303   891026; US 89-428494   891026
IC   ICM  C07D493-04; C12P019-34; C12Q001-68
     ICS  C07D311-16; C07D493-10; C07D519-00; C07H021-02; C07H021-04

=> s l7 and l6 and l5
             9 "RIESNER D"/AU
             0 "RIESNER DETLEF"/AU
             0 "RIESNER DETLEV"/AU
            14 "EIGEN M"/AU
             0 "EIGEN MANFRED"/AU
             0 "HENCO KARSTEN"/AU
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L19          1 L7 AND L6 AND L5

=> d

L19  ANSWER 1 OF 1  COPYRIGHT 1995 DERWENT INFORMATION LTD
AN   93-259782 [33]   WPIDS
DNC  C93-115331
TI   Determn. of nucleic acid sequences amplified in vitro in enclosed
     reaction zone - where probe(s) capable of interacting with target
     sequence is present during or after amplification spectroscopically
     measurable parameters of probe undergo change generating signal,
     etc..
DC   B04 D16
IN   EIGEN, M; HENCO, K; RIESNER, D
PA   (DIAG-N) DIAGEN INST MOLEKULARBIOLOGISC; (DIAG-N) DIAGEN INST
     MOLEKULAR BIOLOGISCHE
CYC  19
PI   DE 4234086  A1 930812 (9333)*      26 pp    G01N033-68
     WO 9316194  A1 930819 (9334)  DE   63 pp    C12Q001-68
        RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
         W: JP US
     EP 581953   A1 940209 (9406)  DE            C12Q001-68
         R: AT BE CH DE FR GB IT LI SE
ADT  DE 4234086 A1 DE 92-4234086 921009; WO 9316194 A1 WO 93-EP254
     930204; EP 581953 A1 EP 93-917362 930204, WO 93-EP254 930204
FDT  EP 581953 A1 Based on WO 9316194
PRAI DE 92-4203178  920205; DE 92-4234086  921009
IC   ICM  C12Q001-68; G01N033-68
     ICS  B01L007-00; B29C051-00; B29C065-02; B65B009-04; C07D493-04;
          C07H021-00; G05D023-19

=> fil ca
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FILE COVERS 1967 - 4 Mar 199 (950304/ED)  VOL 122 ISS 10

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     (FILE 'REGISTRY' ENTERED AT 10:34:43 ON 08 MAR 95)
                DEL HIS Y

     FILE 'REGISTRY' ENTERED AT 10:36:25 ON 08 MAR 95
                E PSORALEN/CN 5
L1            10 S PSORALEN?/CN

     FILE 'CA' ENTERED AT 10:37:01 ON 08 MAR 95
L2          2507 S L1 OR PSORALEN?
L3            17 S L2 AND (PCR OR POLYMERASE CHAIN REACT?)
L4             5 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
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                E HENCO K?/AU
L5           45 S E2 OR E4
                E EIGEN M?/AU
L6           89 S E2 OR E4
                E RIESNER D/AU
L7          128 S E3-E5
L8            1 S L7 AND L6 AND L5

     FILE 'BIOSIS, MEDLINE, EMBASE' ENTERED AT 10:44:13 ON 08 MAR 95
     FILE 'BIOSIS'
L9            1 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
     FILE 'MEDLINE'
L10           2 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
     FILE 'EMBASE'
L11           3 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
     TOTAL FOR ALL FILES
L12           6 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
L13           3 DUP REM L12 (3 DUPLICATES REMOVED)
     FILE 'BIOSIS'
L14           0 S L8
     FILE 'MEDLINE'
L15           0 S L8
     FILE 'EMBASE'
L16           0 S L8
     TOTAL FOR ALL FILES
L17           0  L8

     FILE 'WPIDS' ENTERED AT 10:47:40 ON 08 MAR 95
L18           1 S L3 AND (NUCLEIC ACID OR ELECTROMAGNETIC)
L19           1 S L7 AND L6 AND L5

     FILE 'CA' ENTERED AT 10:49:11 ON 08 MAR 95

=> s l3 not l4
L20          12 L3 NOT L4

=> d 1-12 an ti so au ai pi py

L20  ANSWER 1 OF 12  CA  COPYRIGHT 1995 ACS
AN   122:2751  CA
TI   Psoralen treatment of adenovirus particles eliminates
     virus replication and transcription while maintaining the
     endosomolytic activity of the virus capsid
SO   Virology (1994), 205(1), 254-61
     CODEN: VIRLAX; ISSN: 0042-6822
AU   Cotten, Matt; Saltik, Mediyha; Kursa, Malgorzata; Wagner, Ernst;
     Maass, Gerd; Birnstiel, Max L.
PY   1994

L20  ANSWER 2 OF 12  CA  COPYRIGHT 1995 ACS
AN   121:197031  CA
TI   Quantitation of interferon gamma mRNA levels in psoralen
     /UVA-treated HUT-78 cells by competitive PCR
SO   Biochem. Biophys. Res. Commun. (1994), 203(2), 935-42
     CODEN: BBRCA9; ISSN: 0006-291X
AU   Saed, Ghassan M.; Fivenson, David P.
PY   1994
```

L20 ANSWER 3 OF 12 CA COPYRIGHT 1995 ACS
AN 121:149856 CA
TI Use of chemical clamps in denaturing gradient gel electrophoresis: Application in the detection of the most frequent Mediterranean .beta.-thalassemic mutations
SO PCR Methods Appl. (1993), 3(2), 122-4
CODEN: PMAPES; ISSN: 1054-9803
AU Fernandez, Eric; Bienvenu, Thierry; Desclaux, Francois; Beldjord, Kheira; Kaplan, Jean Claude; Beldjord, Cherif
PY 1993

L20 ANSWER 4 OF 12 CA COPYRIGHT 1995 ACS
AN 121:126227 CA
TI Reversible inhibition of gene expression by a **psoralen** functionalized triple helix forming oligonucleotide in intact cells
SO J. Biol. Chem. (1994), 269(24), 16933-7
CODEN: JBCHA3; ISSN: 0021-9258
AU Degols, Genevieve; Clarenc, Jean-Pierre; Lebleu, Bernard; Leonetti, Jean-Paul
PY 1994

L20 ANSWER 5 OF 12 CA COPYRIGHT 1995 ACS
AN 120:211583 CA
TI Mutation specificity of 8-methoxypsoralen plus two doses of UVA irradiation in the hprt gene in diploid human fibroblasts
SO Carcinogenesis (1994), 15(2), 201-7
CODEN: CRNGDP; ISSN: 0143-3334
AU Yang, Shih Ching; Lin, Jin Guo; Chiou, Chiuan Chian; Chen, Lin Yi; Yang, Jia Ling
PY 1994

L20 ANSWER 6 OF 12 CA COPYRIGHT 1995 ACS
AN 119:263654 CA
TI Laboratory experience and guidelines for avoiding false positive **polymerase chain reaction** results
SO Eur. J. Clin. Chem. Clin. Biochem. (1993), 31(8), 531-5
CODEN: EJCBEO; ISSN: 0939-4974
AU Victor, T.; Jordaan, A.; du Toit, R.; Van Helden, P. D.
PY 1993

L20 ANSWER 7 OF 12 CA COPYRIGHT 1995 ACS
AN 119:242935 CA
TI Detection of mutations using photobridging-stabilized double-stranded DNA denaturation gradient electrophoresis
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
IN Dupret, Daniel; Goossens, Michel; Chassignol, Marcel; Nguyen, Thank Thuong
AI WO 93-FR20 930111
PI WO 9315223 A1 930805
PY 1993

L20 ANSWER 8 OF 12 CA COPYRIGHT 1995 ACS
AN 118:248650 CA
TI **Psoralen**-modified oligonucleotide primers improve detection of mutations by denaturing gradient gel electrophoresis

and provide an alternative to GC-clamping
SO Hum. Mol. Genet. (1993), 2(4), 393-7
CODEN: HMGEE5; ISSN: 0964-6906
AU Costes, B.; Girodon, E.; Ghanem, N.; Chassignol, M.; Thuong, N. T.; Dupret, D.; Goossens, M.
PY 1993

L20 ANSWER 9 OF 12 CA COPYRIGHT 1995 ACS
AN 118:206140 CA
TI Primer directed amplification of Mycobacterium tuberculosis DNA in clinical specimens. I. Primers and reaction conditions
SO Taehan Misaengmul Hakhoechi (1992), 27(1), 35-44
CODEN: TMHCDX; ISSN: 0253-3162
AU Kim, Sang Jae; Park, Young Kil; Cho, Sang Hyun; Shim, Myung Sup
PY 1992

L20 ANSWER 10 OF 12 CA COPYRIGHT 1995 ACS
AN 117:144761 CA
TI Use of DMSO and glycerol to minimize inhibition of **PCR** amplification by photoactivatable sterilants
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
IN Cimino, George D.; Isaacs, Stephen T.; Sninsky, John J.
AI WO 91-US7895 911024
PI WO 9207957 A1 920514
PY 1992

L20 ANSWER 11 OF 12 CA COPYRIGHT 1995 ACS
AN 116:122635 CA
TI Preventing amplification of contaminants in **polymerase chain reaction.**
SO PCT Int. Appl., 25 pp.
CODEN: PIXXD2
IN Brandys, Pascal; D'Auriol, Luc
AI WO 91-FR513 910627
PI WO 9200384 A1 920109
PY 1992

L20 ANSWER 12 OF 12 CA COPYRIGHT 1995 ACS
AN 114:37158 CA
TI Use of **psoralen** as extinguisher of contaminated DNA in **PCR**
SO Nucleic Acids Res. (1990), 18(22), 6739
CODEN: NARHAD; ISSN: 0305-1048
AU Jinno, Y.; Yoshiura, K.; Niikawa, N.
PY 1990

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fil uspat
FILE 'USPAT' ENTERED AT 13:04:59 ON 08 MAR 95

  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *                W E L C O M E   T O   T H E                    *
  *          U. S.   P A T E N T   T E X T   F I L E              *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

=> e henco, k/au
E1            1     840/AU
E2            1     852/AU
E3            0 --> HENCO, K/AU
**** END OF FIELD ****

=> e henco, k/in
E1            1     HENCKENS, ARNOLD/IN
E2            1     HENCMANN, JOHN P/IN
E3            0 --> HENCO, K/IN
E4            2     HENCO, KARSTEN/IN
E5            2     HENCYE, RONALD E/IN
E6            1     HENCZ, EDWARD T/IN
E7            2     HENDAL, WILLEM P/IN
E8            1     HENDBERG, BERNT/IN
E9            1     HENDEE, ALFRED W/IN
E10           1     HENDEE, LEON CLYDE III/IN
E11           2     HENDEL, ARIEL/IN
E12           2     HENDEL, FRANK J/IN

=> s e4
L1            2 "HENCO, KARSTEN"/IN

=> e eigenm, m/in
E1            4     EIGENER, ULRICH/IN
E2            1     EIGENHEER, MAX/IN
E3            0 --> EIGENM, M/IN
E4            2     EIGENMANN, GOTTFRIED/IN
E5            1     EIGENMANN, HELMUT/IN
E6           52     EIGENMANN, LUDWIG/IN
E7            6     EIGENMANN, OSKAR/IN
E8            1     EIGENRAAM, PETER/IN
E9            2     EIGENSTETTER, HERBERT/IN
E10           2     EIGENWALD, BRUNO/IN
E11           3     EIGER, WILLIAM H/IN
E12           1     EIGETSU, KAZUHIKO/IN

=> e eigen, m/in
E1            1     EIGEN, HEINRICH/IN
E2            1     EIGEN, LEWIS D/IN
E3            0 --> EIGEN, M/IN
E4            2     EIGEN, MANFRED/IN
E5            4     EIGENBERG, KENNETH E/IN
E6            1     EIGENBERGER, GERHART/IN
E7            1     EIGENBROD, KARL HEINZ/IN
E8            6     EIGENBROD, LESTER K/IN
E9            2     EIGENBROD, LESTER KURT/IN
E10           1     EIGENBROD, VOLKMAR/IN
E11           3     EIGENBRODE, EDWIN M/IN
E12           1     EIGENBRODE, GARY/IN

=> s e4
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```
L2            2 "EIGEN, MANFRED"/IN

=> e riesner, d/in
E1            3     RIESMEIER, WILHELM/IN
E2            3     RIESMEYER, JUERGEN/IN
E3            0 --> RIESNER, D/IN
E4            3     RIESNER, DETLEV/IN
E5            1     RIESNER, GERHARD/IN
E6            1     RIESNER, MANFRED/IN
E7            1     RIESNER, WALTER/IN
E8            4     RIESOP, JOERG/IN
E9            2     RIESS, AXEL/IN
E10           9     RIESS, GERARD/IN
E11           5     RIESS, GERHARD/IN
E12           1     RIESS, GORDON S/IN

=> s e4
L3            3 "RIESNER, DETLEV"/IN

=> s l1 and l2 and l3
L4            0 L1 AND L2 AND L3

=> s (pcr or polymerase chain react?) and psoralen?
          1416 PCR
          3408 POLYMERASE
        240568 CHAIN
        486480 REACT?
           768 POLYMERASE CHAIN REACT?
                 (POLYMERASE(W)CHAIN(W)REACT?)
           275 PSORALEN?
L5          26 (PCR OR POLYMERASE CHAIN REACT?) AND PSORALEN?

=> s (l1 or l2 or l3) and l5
L6            0 (L1 OR L2 OR L3) AND L5

=> d l5 1-26;s l1 or l2 or l3

1.  5,386,022, Jan. 31, 1995, Primes and probes for the amplification and
detection of aids associated nucleic acids; John J. Sninsky, et al.,
536/24.32; 435/5, 6, 91.2; 536/24.3 [IMAGE AVAILABLE]

2.  5,372,929, Dec. 13, 1994, Methods for measuring the inactivation of
pathogens; George D. Cimino, et al., 435/6, 5, 91.2, 173.1; 436/501;
935/77, 78 [IMAGE AVAILABLE]

3.  5,372,928, Dec. 13, 1994, Hepatitis C virus isolates; Tatsuo
Miyamura, et al., 435/5, 6; 536/23.72, 24.32; 935/8, 9, 78 [IMAGE
AVAILABLE]

4.  5,366,877, Nov. 22, 1994, Restriction/ligation labeling for primer
initiated multiple copying of DNA ssequences; Douglas H. Keith, 435/91.2,
6 [IMAGE AVAILABLE]

5.  5,359,053, Oct. 25, 1994, Modified deazapyrimidines; Thomas E.
Rogers, et al., 536/28.4, 24.3, 24.31, 24.32, 26.1, 26.8, 28.53, 28.54,
28.55 [IMAGE AVAILABLE]

6.  5,350,671, Sep. 27, 1994, HCV immunoassays employing C domain
antigens; Michael Houghton, et al., 435/5, 6, 975; 436/512, 518; 530/300,
326, 327, 328, 812, 826; 930/220, 223 [IMAGE AVAILABLE]
```

7. 5,273,881, Dec. 28, 1993, Diagnostic applications of double D-loop formation; Elissa P. Sena, et al., 435/6, 172.3; 436/501; 935/77, 78 [IMAGE AVAILABLE]

8. 5,242,820, Sep. 7, 1993, Pathogenic mycoplasma; Shyh-Ching Lo, 435/240.2, 5, 872 [IMAGE AVAILABLE]

9. 5,221,608, Jun. 22, 1993, Methods for rendering amplified nucleic acid subsequently unamplifiable; George D. Cimino, et al., 435/6, 91.2, 92, 808; 436/501, 805; 514/455; 536/22.1, 23.1; 935/17, 78, 88 [IMAGE AVAILABLE]

10. 5,215,914, Jun. 1, 1993, Adherent and invasive mycoplasma; Shyh-Ching Lo, et al., 435/252.1; 424/264.1; 435/5, 870; 536/23.7, 24.32, 24.33 [IMAGE AVAILABLE]

11. 5,184,020, Feb. 2, 1993, Device and method for photoactivation; David P. Hearst, et al., 250/455.11, 454.11, 504R; 422/186 [IMAGE AVAILABLE]

12. 5,176,995, Jan. 5, 1993, Detection of viruses by amplification and hybridization; John J. Sninsky, et al., 435/6, 5, 810; 436/811; 536/24.32, 24.33; 935/78 [IMAGE AVAILABLE]

13. 5,166,057, Nov. 24, 1992, Recombinant negative strand RNA virus expression-systems; Peter Palese, et al., 435/69.1, 172.3, 194, 235.1, 320.1; 935/32, 34, 57 [IMAGE AVAILABLE]

14. 5,139,940, Aug. 18, 1992, Activation compounds and methods of synthesis of activation compounds; Stephen T. Isaacs, et al., 435/6, 91.3, 91.5, 91.51, 810; 436/501; 514/455, 457; 536/23.1, 25.3; 935/78, 88 [IMAGE AVAILABLE]

15. 5,134,066, Jul. 28, 1992, Improved probes using nucleosides containing 3-dezauracil analogs; Thomas E. Rogers, et al., 435/91.3, 6, 91.5, 91.51, 805; 536/24.3, 26.8, 28.1, 122, 124, 126; 546/290, 296, 302, 303, 345, 353; 935/78, 86, 88 [IMAGE AVAILABLE]

16. 5,093,245, Mar. 3, 1992, Labeling by simultaneous ligation and restriction; Douglas H. Keith, et al., 435/91.2, 6, 35, 91.52, 91.53, 810; 536/25.32 [IMAGE AVAILABLE]

17. 5,008,182, Apr. 16, 1991, Detection of AIDS associated virus by polymerase chain reaction ; John J. Sninsky, et al., 435/5, 6; 436/94, 501; 536/23.7, 23.72 [IMAGE AVAILABLE]

18. 4,822,731, Apr. 18, 1989, Process for labeling single-stranded nucleic acids and hybridizaiton probes; Robert M. Watson, et al., 435/6; 436/501, 827; 536/24.3, 25.32, 25.4, 25.5, 25.6; 930/10; 935/78 [IMAGE AVAILABLE]

19. 4,803,297, Feb. 7, 1989, Carbamic acid ester useful for preparing a nucleic acid probe; Corey H. Levenson, et al., 560/159 [IMAGE AVAILABLE]

20. 4,800,159, Jan. 24, 1989, Process for amplifying, detecting, and/or cloning nucleic acid sequences; Kary B. Mullis, et al., 435/91.2, 91.41, 172.1, 172.3, 320.1; 536/23.5, 23.53, 24.33; 935/17, 18 [IMAGE AVAILABLE]

21. 4,789,630, Dec. 6, 1988, Ionic compounds containing the cationic

meriquinone of a benzidine; Will Bloch, et al., 435/5, 6, 7.1, 7.21, 7.36, 7.5, 7.8, 28, 803, 810, 960, 975; 436/501; 552/302; 564/248; 935/78 [IMAGE AVAILABLE]

22. 4,754,065, Jun. 28, 1988, Precursor to nucleic acid probe; Corey H. Levenson, et al., 562/564 [IMAGE AVAILABLE]

23. 4,751,313, Jun. 14, 1988, Precursor to nucleic acid probe; Corey H. Levenson, et al., 548/304.1 [IMAGE AVAILABLE]

24. 4,705,886, Nov. 10, 1987, Precursor to nucleic acid probe; Corey H. Levenson, et al., 560/159; 562/564; 930/10, 220 [IMAGE AVAILABLE]

25. 4,683,195, Jul. 28, 1987, Process for amplifying, detecting, and/or-cloning nucleic acid sequences; Kary B. Mullis, et al., 435/6, 91.2, 91.41, 172.3; 436/63, 94, 501, 508; 935/17, 18, 76, 77, 78 [IMAGE AVAILABLE]

26. 4,617,261, Oct. 14, 1986, Process for labeling nucleic acids and hybridization probes; Edward L. Sheldon, III, et al., 435/6, 7.24, 7.5, 7.9; 436/94, 501; 536/24.3, 25.32, 25.4, 28.5, 28.54; 548/303.1; 930/220; 935/78 [IMAGE AVAILABLE]

L7 7 L1 OR L2 OR L3

=> d 1-7

1. 5,224,536, Jul. 6, 1993, Thermostatting device; Manfred Eigen , et al., 165/32, 2, 61; 435/290 [IMAGE AVAILABLE]

2. 5,066,377, Nov. 19, 1991, Method and device for producing a controllable and reproducible temperature gradient and use thereof; Volker Rosenbaum, et al., 204/182.8, 182.7, 299R [IMAGE AVAILABLE]

3. 5,057,426, Oct. 15, 1991, Method for separating long-chain nucleic acids; Karsten Henco , et al., 435/270; 536/25.4, 25.41 [IMAGE AVAILABLE]

4. 4,912,044, Mar. 27, 1990, Preparation of mesophilic microorganisms which contain a D-hydantoinase which is active at elevated temperature; Elard Jacob, et al., 435/172.3, 231, 252.33, 280, 849; 536/23.2, 23.7; 935/14 [IMAGE AVAILABLE]

5. 4,699,717, Oct. 13, 1987, Chromatographic process for the separation of nucleic acids; Detlev Riesner , et al., 536/25.4; 210/198.2, 502.1, 635, 656; 502/401, 439; 514/44; 536/26.73 [IMAGE AVAILABLE]

6. 4,076,420, Feb. 28, 1978, Apparatus for investigating fast chemical reactions by optical detection; Leo C. M. De Maeyer, et al., 356/73, 246, 313, 317, 320, 338, 364; 422/82.05, 82.08, 82.09 [IMAGE AVAILABLE]

7. 4,043,559, Aug. 23, 1977, Educational game; Manfred Eigen , et al., 273/239, 236, 272, 284 [IMAGE AVAILABLE]

=>